

Enlarging the hole

Pre-reaming operations are carried out to enlarge the drilled hole to a size suitable for accepting the product pipe. Pull-back pipe is added behind the reamer. Depending upon the pipe diameter to be installed several pre-reamed operations may be necessary, each progressively enlarging the hole.

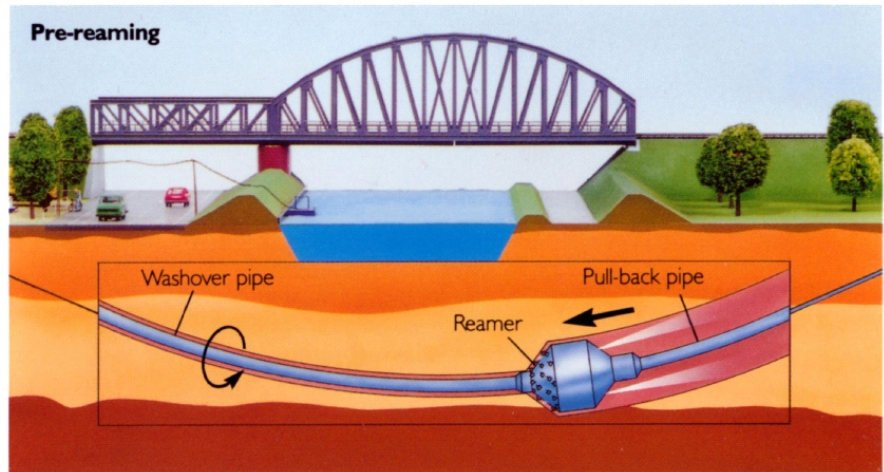


Figure B-14: HDD - Second Pass

Installing the Pipe

The pull-back is connected to a 'cleaning' reamer which in turn connects to a swivel joint, (to prevent pipe rotation) that is attached to the pipeline towhead. The drill rig is then used to pull the product pipe into the preformed hole.

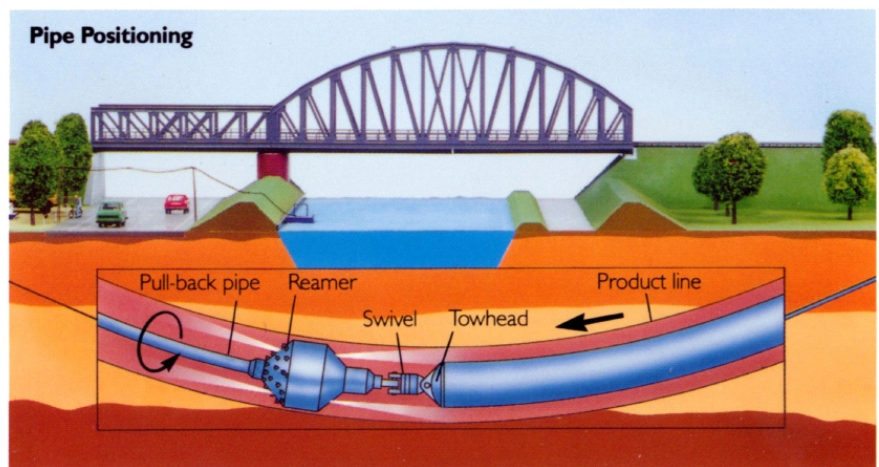


Figure B-15: HDD - Third Pass

SFFP Concord-Sacramento Pipeline

Figures B-14 and 15

**HDD - Second Pass
and Third Pass**

Aspen
Environmental Group